We claim:

1. A method for treatment of an apoptosis-related disease in a subject comprising administering to said subject a therapeutically effective amount of an inhibitor of the ATRX polypeptide, in a dosage sufficient to inhibit ATRX so as to thereby treat the subject.

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2. A method according to claim 1 wherein the inhibitor is administered in conjunction with a chemotherapeutic agent.

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3. A method according to claim 1 wherein the inhibitor is an antibody.

4. A method according to claim 1 wherein the inhibitor is an AS fragment comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:3.

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5. A method according to claim 1 wherein the inhibitor is an siRNA comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:4.

6. A method according to claim 1 wherein the apoptosis-related disease is a cancer.

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7. A method for potentiating a chemotherapeutic treatment of an apoptosis-related disease in a subject comprising administering to said subject a therapeutically effective amount of an inhibitor of the human ATRX polypeptide in conjunction with a chemotherapeutic agent.

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8. A method according to claim 7 wherein the inhibitor is an antibody.

9. A method according to claim 7 wherein the inhibitor is an AS fragment comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:3.

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10. A method according to claim 7 wherein the inhibitor is an AS fragment comprising consecutive nucleotides having the sequence set forth in SEQ ID NO:4.

11.   A method according to claim 7 wherein the apoptosis-related disease is a cancer.

12.   An antisense oligonucleotide having the sequence set forth in SEQ ID NO:3.

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13.   An antisense oligonucleotide having the sequence set forth in SEQ ID NO:4.

14.   An expression vector comprising a nucleic acid molecule encoding the antisense oligonucleotide of claim 12 or 13.

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15.   A process for determining the susceptibility of a subject to a chemotherapeutic treatment of an apoptosis-related disease comprising:

     (a)   providing the average, normal level of the ATRX polypeptide in the cells of healthy subjects;

15   **(b)**   determining the level of the ATRX polypeptide in said subject;

     (c)   comparing the levels obtained in (a) and (b) above, a low level of ATRX polypeptide in said subject as compared to the level in healthy subjects indicating a susceptibility of said subject to a chemotherapeutic treatment of said apoptosis-related disease.

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16.   A process for determining the susceptibility of a subject to a chemotherapeutic treatment of an apoptosis-related disease comprising:

     (a)   providing the average, normal level of mRNA encoding the ATRX polypeptide in the cells of healthy subjects;

25   **(b)**   determining the level of mRNA encoding the ATRX polypeptide in said subject;

     (c)   comparing the levels obtained in (a) and (b) above, a low level of mRNA encoding ATRX in said subject as compared to the level in healthy subjects indicating a susceptibility of said subject to a

30   chemotherapeutic treatment of said apoptosis-related disease.

17.   A process for determining the efficacy of a chemotherapeutic treatment administered to a subject comprising:

(a)   determining the level of the ATRX polypeptide in the subject prior to a treatment;

(b)   determining the level of the ATRX polypeptide in the subject after the treatment;

(c)   comparing the levels obtained in (a) and (b) above, a high level of ATRX polypeptide prior to the treatment as compared to the level after the treatment indicating efficacy of the treatment.

18.   A process for determining the efficacy of a chemotherapeutic treatment administered to a subject comprising:

(a)   determining the level of the ATRX mRNA in the subject prior to a treatment;

(b)   determining the level of the ATRX mRNA in the subject after the treatment;

(c)   comparing the levels obtained in (a) and (b) above, a high level of ATRX mRNA prior to the treatment as compared to the level after the treatment indicating efficacy of the treatment.

19.   A process of diagnosing a cancer in a subject comprising:

(a)   providing the average, normal level of the ATRX polypeptide in the cells of healthy subjects;

(b)   determining the level of the polypeptide in said subject;

(c)   comparing the levels obtained in (a) and (b) above, wherein a high level of the ATRX polypeptide in said subject as compared to the level in healthy subjects is indicative of a cancer.

20.   A process of diagnosing a cancer in a subject comprising:

(a)   providing the average, normal level of a polynucleotide encoding the ATRX polypeptide in the cells of healthy subjects;

(b)   determining the level of the polynucleotide in said subject;

(c)   comparing the levels obtained in (a) and (b) above, wherein a high level of the polynucleotide in said subject as compared to the level in healthy subjects is indicative of a cancer.

21. A process for obtaining a compound which modulates apoptosis in a cell comprising:

    (a)   providing cells which express the human ATRX polypeptide;

5   (b)   contacting said cells with said compound; and

    (c)   determining the ability of said compound to modulate apoptosis in the cells.

22. A process according to claim 21 comprising:

10   (a)   providing test cells and control cells which express the human ATRX polypeptide at a level at which approximately 50% of the cells undergo apoptosis in the presence of an apoptosis-stimulating agent;

    (b)   contacting said test cells with said compound;

15   (c)   treating said cells in conjunction with step (b) with an amount of apoptosis-stimulating agent capable of causing apoptosis in the control cell; and

    (d)   determining the ability of said compound to modulate apoptosis in the test cell.

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23. A process for obtaining a compound which promotes apoptosis in a cell comprising:

    (a)   providing a test cell which expresses the human ATRX polypeptide and a control cell which does not express the human ATRX

25   polypeptide;

    (b)   contacting said cells with said compound;

    (c)   treating said cells in conjunction with step (b) with an amount of apoptosis-stimulating agent capable of causing apoptosis in the control cell but not in the test cell in the absence of said compound;

30   and

    (d)   determining the ability of said compound to promote apoptosis in the test cell.

24. A process for obtaining a compound which modulates apoptosis through the human ATRX polypeptide comprising:

(a) measuring the activity of the human ATRX polypeptide, or a fragment thereof having viability activity,

5 (b) contacting said polypeptide or fragment with said compound; and

(c) determining whether the activity of said polypeptide or fragment is modulated by said compound.

25. A process for obtaining a compound which modulates apoptosis through the

10 human ATRX polypeptide comprising:

(a) measuring the binding of the human ATRX polypeptide, or a fragment thereof having viability activity, to a species to which the human ATRX polypeptide interacts specifically *in vivo* to produce an anti-apoptotic effect;

15 (b) contacting said polypeptide or fragment with said compound; and determining whether the activity of said polypeptide or fragment is affected by said compound.

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